Preservation

G. R. S. IX-5]

Previous references.

File No. 46-19

1919.

(Samy)

Serial Nos. 1, 2 & 3

Later references.

P:16
E

GENERAL AND REVENUE SECRETARIAT.

Serial Nos. ~~Two~~ Three

Part B for Feby 1920

SUBJECT.

Note on "Rat reduction" by Trapping and Baiting as Anti Plague

---

From the Govt of India
No 8162 D 23-10-19
for a copy of their No 633 D 30-9-19
forwarding a note on ——
(Secy) to the Govt of Mysore
No 10939 D 15-11-19.
for a copy of the note —— for perusal
& return

W D 1250—GPB—30,000 - 28-1-19

Ans 10/3

G. R. S. III—1] 1919-20 6711

GENERAL AND REVENUE SECRETARIAT.

(Sanitary)

NOTES.

File No. 46-19

FILE HEADING.

Note on Rat Reduction by Trapping & baiting as Anti Plague measures

From

The First Asst Resident in Singore

No. 8142 Dated 23.10.1919 Received 27.10.1919

Diary No. 6711	Enclos. 2 Spare Copies. –	Serial No. 1

BRIEF ABSTRACT OF LETTER.

Forwards copy of a letter no 633 dated 30.9.1919 from the Govt of India, Department of Education re a note on Rat Reduction by trapping & baiting as Anti Plague measures.

NOTES AND ORDERS.

Submitted with a draft

Asst — C&S
29/10/19 — 29/10

2 Please put up the file re rat campaign at Nanjangud — Mo 30/10

3 Secy 110-18 re rat destruction in Nanjangud if necessary take

Asst 30/10/19 — C&S 30/10

NOTES—First Sheet.

General and Revenue Secretariat

Say File No. 46 of 1919

Serial No	
	4 The letter of the Govt of Mora re rat destruction is subt for perusal
	5 In view of the opinions here expressed it is for consideration whether the campaign oanctd for rangarund may be countermanded without trying it even once
	Secd Member) 30/6/19
1944 30-10-19	
	6 No. No notice has yet been issued in this matter & further action will depend on the outcome of the campaign
orders Kan thereon vide no. LI 253/mel 10-10-8 & 18.11.19 to conduct the Rat destruction Campaign in rangarund	4/11.
	Brd/t a letter enclosing copy of this note 8/11
	8 draft put up for approval 10/11/19
	9 Done 10/11
	2 To the Sany Comrs No 10939 dt 18-11-19. Forward a copy of the note on rat destruction by tapping for perusal & return

Secd 1914

20 NOV 1919

NOTE—Contn. sheet.

b711
14985

3

G. R. S. III-2]

General and Revenue Secretariat.

Say File No 46 of 1919

Serial No.

From the Secretary Commissioners
No. B. dis 628 10.2.20
Returns after perusal the Colony Q^n
not referred to in para 2 of
Secretary
Hon. Minister will now be
13.2.20 Recorded & approved
13/2

yes
13/2/20.

REVISION BRANCH
19 FEB 1920

NOTE—Contn. sheet.

Pol 534

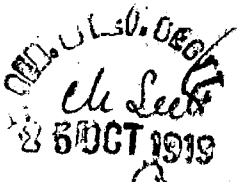
MYSORE RESIDENT'S OFFICE.

Bangalore, 23 October 1919

6711

Rang 4679

No. 8142



A copy of the marginally noted letter, with enclosure, is forwarded to the Chief Secretary to the Government of His Highness the Maharaja of Mysore, for information and favour of such action as the Durbar may think fit to take.

*No 630 dated the 30th September 1919 from the Government of India, Department of Education re a note on "Rat reduction"

27 OCT 1919 Sau 25-10-19

25/10/19

First Assistant Resident.

R. O. 178. (a).—R. P. B.—8-1919.—2,000.

5

Letter No. 633, dated the 30th September 1919, from the Assistant Secretary to the Government of India: Department of Education, (Sanitary) SIMLA, to All Local Governments and - - Administrations:--

* * * * * * * * *

In continuation of this Department letter No. 119, dated the 16th April 1918, with which were forwarded copies of a - - Memorandum on Plague Preventive Measures prepared by the Sanitary Commissioner with the Government of India, I am directed to - -

"TO N.W.F. P x To Coorg and - Delhi.

enclose 15/10/5. copies of a note on "Rat reduction", by Trapping and baiting as Anti-Plague Measures drawn up by Dr. G.D. Chitre, -- Officer in Charge, Plague Prevention Inquiry, for information and such action as the Local Government / " " Administration / y o u may think fit. Additional copies of the note can be obtained direct from the Sanitary - - Commissioner with the Government of India.

A NOTE ON

"Rat reduction" by Trapping and Baiting as Anti-Plague - - 6

Measures.

by

Dr. G. D. Chitre, L. M. & S.,

Officer in charge Plague Prevention Inquiry under the Indian Research

Fund Association.

Issued by

THE SANITARY COMMISSIONER WITH THE GOVERNMENT OF INDIA.

* * * * ** * * * * * * * *

T R A P P I N G.

- - - - - - - - - - - - - -

This method is specially indicated when it is considered necessary to keep down the rat population of any important military trade or pilgrim centre or of any large place in which frequent epidemics occur and which is known to act as a focus from which infection spreads. It is relatively more expensive than baiting and is a measure that requires careful and intelligent supervision if results commensurate with outlay are to be secured. It is, however, a measure that usually excites less opposition than baiting.

Kind of trap to use.

Many traps on the market are defective in design and construction. The best trap to use is the "Wonder trap" made by Henri Marty of France. Care should be taken that the bottom of the posterior chamber of the trap is quite flat so that when that chamber rests on any horizontal surface it should remain steady and no gap should intervene between its base and that surface because such a gap enables the rats to push themselves underneath and eat the bait placed on the bottom of that chamber without entering it. The catch underneath the flap should be so adjusted that on fully depressing the flap, its ~~tip~~ lip should be - - separated to a distance of not less than two inches from the corresponding portion of the frame designed for its reception. Care should also be taken to see that the flap fits accurately in the frame for if there be any space intervening between the two the rat draws down the flap and frequently effects its escape after it is once caught.

The traps should be oiled only sufficiently often to ensure freedom from rust. The less frequent the washing and oiling the better the catch of rats: oil seems to repel rats. Moreover, frequent inspection of traps with the rejection or repair of all found defective is essential.

Kind of substance to use as bait inside a trap.

Rats like grain; the addition of substances such as cheese, meat, fish, fats, sal treacle, etc., instead of improving the attractive value of grain render it markedly less attractive. It is best to use the grain which is used by the inhabitants of the locality as a staple food, and made up in the form of fresh dough with pure water. During the summer months, vegetables such as sweet potato, cucumber, coriander leaves, etc., may be used instead of dough. The position selected for keeping the bait inside the trap should be such as is out of the reach of rats trying to consume it from outside by inserting and extending either their hind or fore-legs, in the interspaces between the wires.

Number of traps to use

When a rapid reduction of rat population is not essential, traps equal to about per cent. of the human population may be used and arrangements should be made to trap each house regularly once a week. But when the reduction in rat population has to be effected at short notice and within a short period, the larger the number of traps used and the more frequently they are used, the better the results.

Important places to trap.

While carrying out a rat campaign, special attention should be devoted to the grain-markets, depots bazars, godowns, railway goods-sheds, stables cattle-sheds, slaughter houses, fuel marts, katcha-built and delapidated houses and the dark, ill-ventilated, over-crowded localities occupied by the poor.

8

In the case of individual quarters, the loft, the cook-house, the parts where food is stored, or thrown, the places affording shelter to rats such as heaps of cowdung, fuel, etc., the out-houses, the - - latrines and such portions of the house as are dark and ill-ventilated, should be specially attended to.

What to do with the rats.

The rats caught in traps may be either sent for examination to a laboratory or destroyed, preferably by drowning.

B A I T I N G.

This method is particularly indicated when it is necessary to reduce rapidly the rat population and when the campaign has to be -- carried out for a short period and in evacuated localities. The chief disadvantage of this method is the nuisance caused by the decomposing bodies of dead rats. This, however, is small as compared with the - dangers of plague that rat-infestation denote.

Kind of poison to use.

Experiments so far conducted show that barium carbonate is the cheapest and best rat poison. It can be had from Messrs. Spalding and Company, 12 Dalhousie Square, East Calcutta, and costs approximately 8 annas a pound. The minimum lethal dose for a house rat is one and half grain and the average fatal period is 18 hours. In practice it is better to use 3 grains.

Amongst the arsenical poisons, acid arseniosus and "Rough on Rats" give good results, almost equivalent to barium carbonate. The phosphorus poisons are extremely repulsive to rats. Amongst them, " "Common sense Rat Exterminator" is better than "Punjab Rat Exterminator."

Barium carbonate has the advantage of being comparatively -- harmless to human beings (1)

9

Formula (2) for making barium carbonate baits.

It is best to mix the poison with a flour made from the grain which is the staple food of the inhabitants of the locality:-

Barium Carbonate... ... ... lbs. 1½

Flour (3) ... ... lbs. 4

Mix both thoroughly and with the addition of sufficient pure water, make into a fairly firm mass. Divide the mass into 3,500 round baits of uniform size, so that each bait would contain approximately three grains of barium carbonate. While preparing the baits, it is very important to avoid imparting to them any extraneous taste or odour such as from dirty hands or utensils, etc., for rats have a highly developed and delicate sense of taste and smell.

How to use baits.

Only freshly prepared baits should be used as rats do not like putrid, mouldy or desiccated baits. They should be laid towards evening in sets of 5 preferably on pieces of brown paper, and as far as possible in such places as are easily accessible to rats but not readily accessible to children, domestic animals, etc. A careful record of the baits as laid should be kept and in the morning all unconsumed baits should be collected and destroyed, note being made of the number wholly disappearing or partly consumed or either nibbled or indented by rats. It is extremely important to try and achieve the maximum amount of success during the first few nights as rats are endowed by nature with marked powers of self preservation and after a certain number of days they succeed in recognizing the dangerous nature of baits and avoid eating them.

Unless otherwise contra-indicated the baiting campaign should be carried out somewhat on the following lines:

Ground-baiting with plain food baits

(a) For the first two or three nights, freshly prepared baits each weighing about fifteen grains made up only dough of the grain which is the staple food of the inhabitants of the locality should be used. They should be laid towards evening in sets of 5, preferably on pieces of brown paper, and

and

10

and about 20 such baits should be used for an average sized room, increasing or decreasing the number according to the rat-infestation of the locality. The number of baits disappearing and the places from where they disappear should be carefully recorded by inspections carried out early the following morning. This procedure gives an idea of the number of poison-baits that should be used on the first day and also of the places where they should be especially laid in order to render a baiting campaign intensive at the outset.

Laying poison baits made of barium carbonate.

(b) A number of freshly prepared barium carbonate baits made according to the formula mentioned above, equivalent to nearly twice the maximum number of plain food baits found to disappear per night as a result of the ground baiting described under (a) above, should be laid on the first night at the places most indicated in order to exert the maximum possible effect at the outset. The percentage of baits disappearing should be noted by an inspection early next morning and this process should be repeated from day to day till a stage is reached when the percentage of baits wholly disappearing falls down to about less than two and when simultaneously a comparatively large number of baits either nibbled or indented by rats are come across (4). This stage should be taken to indicate that the rats have commenced to recognize the dangerous nature of the baits (including both the medium and the poison) used till then.

Ground baiting with other variety of plain food baits. (5).

(c) In order to overcome the nervousness of the surviving rats, a certain number of plain food baits (without poison) each weighing about fifteen grains, made of some other dough commonly used by the inhabitants of the locality (different from that used for mixing up with barium carbonate) should be laid for a few days, till a sufficient number of them are found to disappear.

11

Laying poison baits made up of acid arseniosus.

(d) When rats are found to consume freely the baits mentioned under (c) above, an alternative rat poison such as acid arseniosus should be mixed up with such a dough and fresh baits made thereof according to the following formula - should be laid for a night or two only:- -

Acid arseniosus (6)	...	lb. ¼
F l o u r	...	lbs. 5

Mix both thoroughly and with the addition of sufficient pure water make into a firly firm mass. Divide the mass into 3,500 round baits of uniform size so that each bait would contain approximately half a grain of acid arseniosus.

Laying poison baits made of Punjab Rat Exterminator.

(e) Subsequently the following baits should be used, for one or two nights only, to kill as many of the remaining rats as possible:--

Punjab Rat Exterminator (7)	...	lbs. 1½
J o g g e r y	...	lbs. 2
W h e a t F l o u r .	...	lbs. 4

Mix the poison thoroughly with joggery by means of wooden spatulae. Then add flour and, if necessary, sufficient water to make into a fairly firm mass. Divide the mass into 3,500 round baits of uniform size so that each bait would contain approximately three grains of Punjab Rat Exterminator.

Lines on which further attempts at baiting should be made.

(f) While carrying out subsequent attempts at destroying the remaining margin of rats, the following general rules - should be borne in mind:- -

I. Our chances of success under such circumstances slightly improve for a day or two by changing the medium with - which the rat-poisons already mentioned are given mixed up.

12

II By changing the form in which the rat-poisons are administered, such as by giving them dry mixtures of flour and poison instead of dough and poison, etc., slight additional success can be achieved for a day or two.

III By regaining the confidence of the rats, by accustoming them for a few days to the eating of plain food baits of a dough not previously tried and then by mixing with it a rat-poison not previously used, it is possible to deceive such rats to a certain extent for a brief period.

IV. Although marked difficulty is experienced in rapidly and continuously destroying the remaining margin of rats by means of baiting, it is comparatively easy to catch them by means of trapping.

As rats acquire a tendency to avoid poison baits, such baiting campaigns should not be carried out continuously but should be repeated at the intervals of about a month or so.

When baiting is being carried on, all grain should be closed up or protected from rats as far as possible especially at night and all waste matter should be removed so that the rats are practically driven to take the baits.

What to do with dead rats.

The rats found dead after baiting should be sprinkled over with crude kerosene or a 10 per cent solution in water of kerosene emulsion or pestorine, in order to kill the fleas. Then the rats should be transferred by means of a long forceps to a tin-pot having a closely fitting lid. They may then be sent for examination to a laboratory or destroyed.

---

(1) Note:- A dose of 15 grains of barium carbonate is found to be generally fatal to cats and a dose of 20 grains always kills a full grown fowl. Dogs can withstand a dose of 140 grains.

(2) Note:- When circumstances, such as the progress of a plague epizootic, render it necessary readily to recognize

those rats who have consumed poison baits from others, Methylene blue stain in the proportion of 1-50th grain per bait, should be added to the above-mentioned formulæ. By cutting open the stomach of the rats and exposing the contents to air or especially to sunlight, the blue colour of the stain can be easily detected in the stomach contents of those rats who have consumed the coloured poison baits.

(3) Note:- The flour should be made from bajri, jowari or wheat with a preference for bajri if the flour is eaten to any extent by the inhabitants of the district. Rice flour should only be used in those districts where rice is eaten to the exclusion of other grains.

(4) Note:- This stage is generally reached after about a week of continuous and vigorous baiting.

(5) [illegible]:- Under emergent circumstances such as when it is necessary to stamp out plague infection that has just started and is fairly localized, stages (a) and (c) described above might be either cut short or entirely dispensed with.

(6) Note:- As acid arsenicosus is fatal to human beings, etc., great care should be taken while using these baits. They should be laid as far as possible after the children have gone to sleep. They should be used at such places as are readily accessible to rats, but not easily accessible to children and domestic animals and they should be collected early the following morning before the children get up. Persons preparing or handling the baits, should thoroughly wash their hands before partaking any food. The vessels, etc., used for mixing should also be thoroughly cleaned afterwards.

(7) Note:- Vessels, etc., used in the mixing, and hands should be carefully cleaned afterwards.

* * * * * * * * * *

"C O P Y"

R E G I S T R A R,

RESIDENT'S OFFICE.

S.V.

C R. S. VI—G/32]

14

SUBJECT.....

.....

.....

Diary No. of letter replied to... 6711

Section Sanitary
File No. 66/9
Serial No. 2

GENERAL AND REVENUE SECRETARIAT
( )
, *the* 191

No. 60939 Emb

Date of issue..... 15/11

To

Signed by..... M. Mr. Gupta

The ~~Senior~~ Sanitary Commr.
and Surgeon
Govt.

I am directed to ~~by~~ forward for favour of return herewith copy of a note on "Rat reduction by trapping & baiting as Anti Plague measures received from the Govt of India, Deptt of Education, ~~and~~ requested to request you to be so good as to Continue the rat destruction campaign at Nanjangud on the lines over.

I have &c.,
for
Dy Chief Sec

~~* to be kindly returned when no longer~~

688
10/11

15

suggested therein.

A report on the result of the action taken in the matter may be submitted for the information of Govt

Shamsher

Chief Secretary to Govt

10/4/19

List of enclosures.

Copied by

Examined by

W D86—GPB—60,000—15-11-16

16

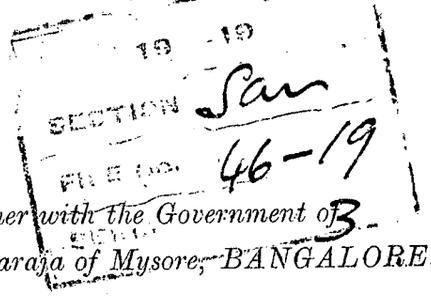
Department of Public Health in Mysore.

OFFICE OF THE SANITARY COMMISSIONER
WITH THE GOVT. OF MYSORE.

Bangalore, Dated the 10th February 1920

No. R Dis 62
Enc. One

No 14985.



From

A. K. PANI, ESQ., D.P.H., etc.
Offg. Sanitary Commissioner with the Government of
H. H. the Maharaja of Mysore, BANGALORE.

To

C. S. Balasundaram Iyer Esq., B.A.,
Chief Secretary to Government,
Bangalore.

Sir,

I have the honor to return herewith after perusal, the copy of a note on "Rat reduction by trapping and baiting as anti-plague measures" received with your letter No. G. 10,939San. 46-19-2 dated the 15th. November 1919.

2. Copies of the the Note have been sent to the Deputy Commissioners of districts and the Presidents of Municipalities for information.

I have the honor to be,

Sir,

Your most obedient servant,

Offg. Sanitary Commissioner.

From The Offg. Sanitary Commissioner
in Mysore Bangalore

2122?

To The Chief Secretary to
Government

Dated 10 2 20

Despatched

Received

General No. 13 026 62

No.

Enclosure No.

San
203